THE SIGNIFICANCE AND PERFORMANCE OF MALAYSIA ISLAMIC REAL ESTATE INVESTMENT TRUSTS IN MIXED-ASSET PORTFOLIO

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Dedicated to:

My father, my mother, my family and my love.

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ABSTRACT

The thesis reports the empirical analysis on the significance and performance of Islamic REITs in Malaysia. Despite the establishment of REIT in Malaysia in 2005, Malaysia has established new form of REIT called Islamic REITs (I-REITs) in 2006 to enhance the development of REIT in Malaysia. It is interesting to study the performance of I-REITs because the issue is important, as I-REITs have established almost a decade and the topic can catch interest to the academic community, investors, policy makers and public. Investors now have much choice on selecting I-REIT as their asset class into a mixed-asset portfolio and it is important to select the best asset and made a good decision before doing so. Evaluation on the performance could be relying on the time-series data particularly past value of total return. The motivation of this study is to assess the significance and performance of I-REITs in mixed-asset portfolio in Malaysia. The performance of the I-REITs and other asset classes were assessed by using risk-adjusted performance, portfolio diversification potential, efficient frontier, portfolio optimization and Granger causality test over December 2008 to December 2014. I-REITs was compared with other asset classes in mixed-asset portfolio namely Conventional REITs (C-REITs), shares, Islamic shares, bonds, property, industrial, finance and agriculture. The findings has evidence that I-REITs have superior risk-adjusted performance compared to C-REITs and other asset classes and provide portfolio diversification potential and a significant role as it can reduce the risk and enhance the return in mixed-asset portfolio. Granger causality test was employed to study the relationship on I-REITs return with other asset class. The empirical result has recorded that industrial granger cause on I-REITs return but I-REITs does not granger cause industrial return. It is important to note that compare from the previous study, I-REITs performance has improved using longer time series data as the market become more mature from time to time. Based on the empirical findings, I-REITs is significant in the mixed-asset portfolio and can bring improvement in the return gains and risk reduction in the mixed-asset portfolio.

ABSTRAK

Tesis ini melaporkan analisis empirikal terhadap kepentingan dan prestasi Islamik REITs di Malaysia. Meskipun Malaysia telah menubuhkan REITs pada tahun 2005, Malaysia juga telah menubuhkan satu bentuk REITs yang dinamakan Islamik REITs (I-REITs) pada tahun 2006 untuk membantu perkembangan pembangunan REIT di Malaysia. Adalah sangat menarik untuk mengkaji prestasi I-REITs kerana isu ini sangat penting kerana I-REITs telah ditubuhkan hampir sedekad dan topik ini dapat menarik perhatian komuniti akademik, pelabur, penggubal dasar dan orang awam. Pelabur kini mempunyai lebih banyak pilihan dalam memilih I-REIT sebagai kelas aset di dalam portfolio aset bercampur dan adalah sangat penting untuk memilih aset yang terbaik dan membuat keputusan yang tepat sebelum berbuat demikian. Penilaian terhadap prestasi adalah bersandarkan kepada data siri masa lebih-lebih lagi pada nilai masa lalu menggunakan jumlah pulangan. Motivasi disebalik kajian ini adalah untuk menilai kepentingan dan prestasi I-REITs didalam portfolio aset bercampur di Malaysia. Prestasi I-REITs dan kelas aset yang lain telah diukur menggunakan prestasi terlaras risiko, potensi pelbagaian portfolio, sempadan cekap, optimasi portfolio dan ujian kesan ‘Granger’ pada Disember 2008 sehingga Disember 2014. I-REITs telah dibandingkan dengan kelas aset yang lain didalam portfolio aset bercampur iaitu Konvensional REIT (C-REITs), saham, saham Islamik, bon, harta tanah, industri, kewangan, dan pertanian. Hasil kajian mendapati I-REITs mempunyai prestasi terlaras risiko yang lebih baik berbanding dengan C-REITs dan aset-aset lain dan memperuntukkan potensi pelbagaian portfolio dan peranan yang signifikan untuk mengurangkan risiko dan meningkatkan pulangan kerana I-REITs boleh mengurangkan risiko dan meningkatkan pulangan dalam portfolio aset bercampur. Ujian kesan ‘Granger’ telah digunakan dalam mengkaji hubungan terhadap pulangan I-REITs dengan pulangan aset kelas yang lain. Hasil empirikal telah merekodkan bahawa industri boleh memberikan kesan ‘Granger’ terhadap I-REITs, tetapi I-REITs tidak boleh memberikan kesan ‘Granger’ terhadap industri. Adalah sangat penting untuk ditekankan bahawa berbanding kajian yang lepas, prestasi I-REITs telah bertambah baik kerana pasaran telah menjadi matang dari semasa ke semasa. Berdasarkan hasil empirikal, I-REITs adalah signifikan dalam portfolio aset bercampur di mana ianya dapat meningkat keuntungan pulangan dan mengurangkan risiko yang terdapat dalam portfolio aset bercampur.

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ASEAN	-	Association of South-East Asian Nations
C-REITs	-	Conventional Real Estate Investment Trusts
GDP	-	Gross Domestic Product
I-REITs	-	Islamic Real Estate Investment Trusts
I-Shares	-	Islamic Shares
MPT	-	Modern Portfolio Theory
REIT	-	Real Estate Investment Trust
VAR	-	Vector Autoregression

CHAPTER 1

INTRODUCTION

1.1 Preliminary

This thesis examines the significance and performance of Malaysia's Islamic Real Estate Investment Trusts (I-REITs) in mixed asset portfolios. This chapter contains the most important elements of this thesis and begins with the research background leading to the statements of research issues, research gaps and objectives. This is continued by a brief discussion of the research methodology used and the contribution of the study. This chapter ends with the thesis organisation.

1.2 Research Background

This section highlights the understanding of the significance of the I-REIT market, Malaysia's REIT market, and the Malaysia's property market in brief. This is followed with a discussion on the terms of mixed-asset portfolios from various studies conducted by previous researchers. Finally, a discussion on various statistics techniques used from previous studies in the property investment market. This will lead to some of the techniques used to analyse the performance of I-REITs in mixed-asset portfolios.

Property has unique investment characteristics compared to other asset classes such as shares and bonds because it can provide a balance in an investment portfolio. Property investment can offer good diversification benefits to the investors and it is the main reason why investors invest in property sectors. According to Kanigwa (2003), a portfolio risk can be reduced and the return can be enhanced if the property is added to the investment portfolio. Furthermore, there are other benefits that are offered by property investments such as income stability, capital growth, tax reduction and an effective hedge against inflation (Pham 2013).

A mixed-asset portfolio is a combination of different asset classes' techniques to enhance the diversification benefits and hedge against inflation. Markowitz (1952) implies the mean-variance portfolio theory to examine how the combination of asset classes can affect the expected return of the combination portfolios from the efficient frontier. Time series data is usually derived to analyse the efficient frontier. Typical types of asset classes in a mixed-asset portfolios were stocks and bonds because most of the investors set some allocation in their investment portfolios. Real estate is one of the important asset classes that can be an alternative aside from shares and bonds to the investors by provide better diversification benefits and hedge against inflation (Falkenbach 2009; Giliberto 1992; Lizieri 2013; Mull & Soenen 1997; Rehring 2012;).

Property investment in Malaysia can be divided into two parts: direct property investment and indirect property investment. Direct property investments involve the building and selling of physical assets from a property developer. The ownership of those properties could be direct partial or complete ownership. There are many types of direct property investments such as residential and commercial; either retail or office (Leng et al. 2014). Meanwhile, indirect property investment in Malaysia consists of listed property companies (property stocks) and Real Estate Investment Trust (REIT, formerly known as Listed Property Trust (LPT)).

The Malaysian property market keeps growing and developing in order to match the realisation of Malaysia towards Vision 2020 where Malaysia becomes a developed country. However, the property sector seems weaker and not stabilised due to an oversupply of residential and commercial properties. Knight Frank (2015) quoted:

> *"The property investment market is in a fragile state due to the current economic uncertainties with the Ringgit becoming weak for the first time in 16 years; China's stock market downswing; the Greek crisis; the rising cost of living and the catastrophe of Malaysian political issues. This matter made people more careful in investing. There must be a good approach to attract investors and make them confident to keep investing in Malaysia particularly in the real estate sectors".*

Generally, the Malaysian economic condition is still in a good position where the growth momentum is maintained at 5.6% for the first quarter of 2015 (4Q2014: 5.7%). Malaysia achieved an economic growth rate of 6.0% in 2014; nevertheless the unemployment rate was not encouraging with 3.1% in 1Q2015. This indicates that the labour market is in a deteriorating condition (Knight Frank 2015).

Data gained from National Property Information Centre (NAPIC) shown the number of property transactions in all types of property in all states in Malaysia increased from 381,130 units (2013) to 384,060 units (2014). The top sales property in Malaysia for 2014 was the residential property at approximately 64.4%. Besides that, the supply for residential, shop, and industrial units increased by 2.3% from 2013 to 2014. The demand on the property sector are still available as seen overall. The number of property transactions and number of supply are shown in Table 1.1, Figure 1.1 and Table 1.2.

Table 1.1: Number of Property Transactions in Malaysia

Type of Property	Year 2013	2014
Residential	246,225	247,251
Commercial	34,298	35,528
Industrial	8,418	8,100
Agriculture	70,698	72,104
Development Land	21,455	21,040
Other	36	37
Total	**381,130**	**384,060**

Source: NAPIC (2014)

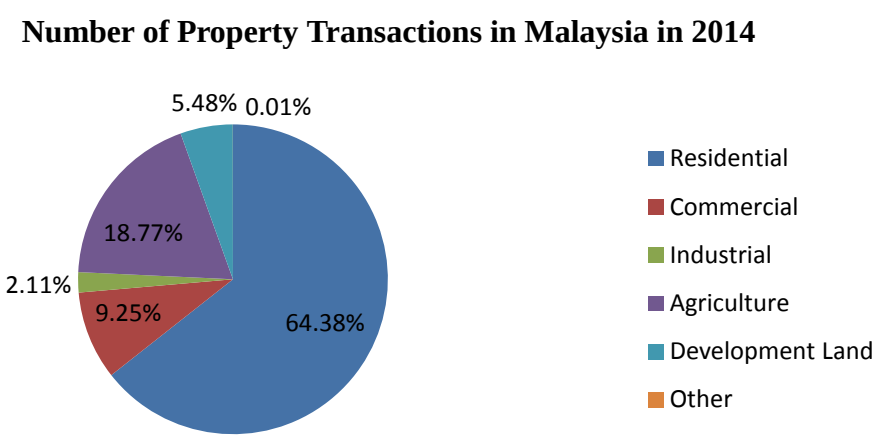

Figure 1.1: Number of Property Transactions in Malaysia, 2014.
Source: NAPIC (2014)

Table 1.2: Number of Property Supply in Malaysia

Type of Property	Year 2013	2014	Change %
Residential	4,725,109	4,831,791	2.2
Shop	392,304	405,015	3.1
Industrial	95,403	97,123	1.7
Total	**5,212,816**	**5,333,929**	**2.3**

Source: NAPIC (2014)

Real Estate Investment Trust (REIT) considers securitised real estate stocks similar to listed property companies. REITs traded in the stock market. REITs are considered as an attractive asset class because of the REIT legislative framework and its tax transparency. Each country adopted a different legislative framework and tax transparency which makes each REIT in each country different and unique, which has contributed to the growth of the REIT market itself. REITs started in the United States around the 1960s while Malaysian REITs was only launched in August 2005 when the Axis REIT was listed on Bursa Malaysia. To date there are approximately 30 countries that are involved in REIT business. Table 1.3 reviews the list of countries involved in REIT business.

Malaysia's REIT is the continuation of the LPT structure that was established in 1989 to strengthen the securitised property market. However, Malaysia's REIT is still considered as a small market and can even be regarded as an untapped market. There are varieties of property sectors in Malaysia's REIT portfolio such as office, agriculture, industrial, healthcare, retail, hotel and apartment sectors. REITs operating normally are geared towards investments that generate income through real estate assets, and are mainly commercial properties. However, recent trends show REIT funds directed to health and hospitalilty facilities as well as yielding high rise residential properties, industrial and agricultural properties (Olanrele et al. 2014).

There are so many improvements that can be made to help Malaysia's REIT unleash its whole potential to be one of recognition and a super REIT in the world. Until now there are only 16 REITs in Malaysia including three Islamic REITs. Malaysia is home to the unique mixture of Islamic market capital and real estate which is called Islamic REIT.

Table 1.3: List of Countries Involved With REITs

	Countries		
Countries That Have Traded in REITs (Year Introduced)	United States (1960)	Taiwan (2003)	South Africa (2013)
	Netherlands (1969)	Bulgaria (2005)	Dubai (2014)
	Australia (1971)	Malaysia (2005)	Spain (2014)
	Canada (1994)	Israel (2006)	
	Ghana (1994)	Germany (2007)	
	Belgium (1995)	United Kingdom (2007)	
	Brazil (1995)	Italy (2007)	
	Greece (1999)	New Zealand (2007)	
	Turkey (1999)	Nigeria (2010)	
	Japan (2000)	Mexico (2011)	
	South Korea (2001)	Thailand (2012)	
	Singapore (2002)	Finland (2013)	
	France (2003)	Ireland (2013)	
	Hong Kong (2003)	Pakistan (2013)	
REIT Legislation in Progress	Chile	Indonesia	Philippines
	Costa Rica	Lithuania	Puerto Rico
	Hungary	Luxemborg	
REIT under consideration	China		
	India		

Source: UBS and Cohen & Steers (As at June 30, 2012)

Islamic REITs was established in Malaysia and was first in the world after the introduction of Islamic REIT's guidelines in November 2006. I-REITs is an alternative Shariah-compliant investment scheme based on property. The establishment of I-REITs will enhance the acceptance of property investment through commercial property via Shariah-compliant schemes. Thus, this will broaden the indirect property investment area in Malaysia (Dusuki 2008; Saeed 2011; Ting 2007). According to Dusuki (2008), Islamic REIT business activities creates a reasonably stable cash flow through its rental payments. The business is generally involved in trading stocks on the Kuala Lumpur Stock Exchange where REITs provide investors with professionally managed property assets. The returns are received through capital appreciation and annual distribution from investment income such as a property's rental.

According to MIFC (2014), there are four Islamic REITs in Malaysia which contain market capitalisation of RM 14.39 billion as at the end of November 2013. This is representing 42.6% of the overall REITs industry in Malaysia. Malaysian REIT regulatory framework acts as the protector to the investors to maintain the credibility of the REIT industry and guarantees the maximum safety to the investor in dealing with REIT business. I-REITs have a low correlation with the shares market and can be a potential hedge against inflation (Newell & Osmadi, 2009). I-REITs also produce high dividend yields and a high certainty of income due to its business based on real estate's rental (Saeed 2011). I-REITs and Conventional REITs (C-REITs) have different on its fundamentals and make Malaysian REITs more unique. Some investigation is worth undertaking to compare these two asset classes' performance because it could facilitate investors in getting a bigger picture on the Malaysian REIT market (Wong, 2015). However, there is also a need to investigate the performance of I-REITs in mixed asset portfolios in order to assist investors to include I-REITs as an alternative asset class besides the conventional assets such as shares and bonds (Newell and Osmadi, 2009).

Despite the years' establishment of Islamic REITs in Malaysia, studies on the performance of this market are lacking in terms of comparisons in mixed-asset portfolios. Newell and Osmadi (2009) undertook a preliminary study on Islamic REITs in Malaysia in mixed-asset portfolios. However, the study only looked at a short term period because I-REITs had just been established. As such the focus was only on the potential of I-REITs in Malaysia. The importance of a longer time period of study has been discussed by many authors such as Goebel and Kim (1989) who said that a longer time period will determine the competitiveness of the asset class in the market.

According to Feibel (2003), evaluation on performance asset class needs to be carried out to see whether the selected asset class in a mixed asset portfolio could work together to achieve the investor's aim. The asset class return is of a time-varying nature (Pesaran, 2010). It is vital to investigate if there are any improvements on the asset classes from time to time. The diversification of asset class from one to another in a mixed asset portfolio is also of time-varying nature as the diversification vary differently over time (Lideus and Engberg, 2013; Gupta and Jithendranathan, 2008).

Diversification is important in investment portfolios, where the portfolio that has diversified characteristics can usually provide portfolios with a great return and reduced risk thus this characteristic will be determined from the performance of asset class itself. Diversified characteristics can be determined from a correlation analysis where the relationship between returns of asset classes will be tested. Returns that moved oppositely from each other indicated that asset classes have some diversification benefits. Meanwhile, each asset classes have dynamic inter-relationship with another asset class in a mixed-asset portfolio. Discovering the inter-relationship on returns will provide better decision making and provide better returns for the investors. Thus, a better selection of investment assets could be made based on the dynamic inter-relationship of returns (Wit, 1997; Ting and Chung, 2006; Wong, 2015; Razali, 2015).

Time series data is a set of observations that have been recorded through time. There are two types of time series data: discrete data and continuous data. In this research continuous time series data will be devoted to the research (Nason, 2006; Brockwell and Davis, 2006). Time series data has particular frequency collected from daily, weekly, monthly, and quarterly and annually (Datastream, 2009). The time series data will be acquired from Datastream. The frequency of data that will be used is weekly that which is considered high frequency data to obtain an adequate amount of observations. Time series data is believed to convey impending important information from past events to influence future events (Wooldridge, 2002).

According to Chau et al. (2010) the longer time period of investment shows the maturity of the portfolio itself. While, Oyedele et al. (2014) said a longer period of historical data would be preferable in the performance analysis. Thus, a gap in Islamic REIT studies by using longer historical data would be very significant. The applications of risk-adjusted performance analysis in the indirect property investment study would be very noteworthy. There is evidence of using risk-adjusted performance analysis, efficient frontier, asset allocation, rolling correlation and rolling risk in the REIT sectors to study the performance of REIT asset classes as previous studies by Khoi Pham (2011); Khoi Pham (2011a); Newell et al. (2010); Newell et al. (2013); Newell and Wen Peng (2012); and Wen Peng and Newell (2012). This statistical analysis will further enrich the information for Islamic REITs and fill in the gap on Malaysian REIT literature.

Regardless of the performance analysis that uses statistical analysis, econometrics modelling such as the Granger causality test will add more information into the body of knowledge. It is important to understand the relationship between return behaviour between the asset classes in a mixed-asset portfolio. The representation of the Granger causality test will advance the understanding of the I-REIT market. There are a few studies that implemented the Granger causality test to study the causal relationship between the markets such as

Kovac and Lee 2008; Razali 2015; Seng Cheong et al. 2011; and Yunus and Swanson 2007.

1.3 Research Issues

Discussion on performance analysis relating to the REIT studies has become extensive and much deeper. There has been too little attention paid to the significance and performance of I-REITs in a mixed-asset portfolio. This is the time to consider the Islamic REIT studies on its performance as the researchers have longer historical data and better techniques to analyse the performance of Islamic REITs in a mixed-asset portfolio. Islamic REIT as an Islamic asset class with a combination of real estate could have its own performance characteristic and unexpected risk level to be explored. REITs is an alternative asset class that have advantages such as better diversification benefits in mixed-asset portfolios and have a significant role in providing better return and risk reduction in a mixed-asset portfolio. Islamic REITs should reflect the same advantages by having a role and adding value[1] in a mixed-asset portfolio. Conventional REITs is outperformed by Islamic REITs in Malaysia based on previous studies and should be compared again in terms of performance analysis. Comparing the performance of I-REITs and C-REITs also helps to improve the development of Malaysian REITs by assessing the risk-adjusted performance, diversification benefits and optimal allocation of both asset classes in a mixed-asset portfolio. Nonetheless, the study does not only focus on the Islamic REIT performance itself, but also the other asset classes' performance will be assessed. The significance and role of Islamic REITs in a mixed-asset portfolio should be investigated by using total return indices and the possibility of asset classes' return influence each other. The accumulated issues of this study should be explored and investigated to enhance the information pertaining to the I-REIT market.

[1] "role" has the advantage of putting one asset class into a mixed-asset portfolio and lead to the enhancement of diversification benefits, major allocation in the portfolio, better return and risk reduction. While "add value" could be refer as improvements. See Hiang Liow and Adair, (2009) for further explanation.

1.4 Research Gaps

Many studies have been conducted on Real Estate Investment Trusts (REITs) since 1986 from all over the world. The emergence of the Islamic Real Estate Investment Trust (I-REITs) in 2005 opened a new gap in the studies. The studies on I-REITs from 2005 until today concentrate on the development, guidelines and structure of I-REITs. So far there is only one study relating to the significance and performance of I-REITs in mixed-asset portfolios[2]. Availabilty of longer historical data will gather new information on I-REIT's performance and its role in a mixed-asset portfolio. This study will follow financial, statistical and econometric techniques to investigate the performance and significance of I-REITs in mixed-asset portfolios. Enhancement of a number of asset classes in this study will reflect the strength of I-REITs such as diversification benefits, optimal allocation, expected return and risk reduction ability. Comparison between I-REITs and C-REITs in terms of a risk-adjusted basis, diversification benefits and optimal allocation should also be very significant in this study and contribute to the body of knowledge. Application of the Granger causality test in the study will contribute to the Malaysian REIT markets' body of knowledge.

1.5 Research Questions

Following the research issues, there are four research questions that can be formed for this studies are:

i. Which asset class is better between I-REITs and C-REITs?
ii. Do I-REITs show diversification potential with other asset classes?
iii. What is the role and significance of I-REITs in a mixed-asset portfolio?
iv. What are the significant asset classes that drive on I-REIT returns?

[2] Newell and Osmadi, (2009) have conducted the preliminary performance analysis for Islamic REITs in a mixed-asset portfolio from August 2006 to December 2008.

1.6 Research Objectives

The research objective is based on the strategies and planning from research systems to achieve specific results within a time frame with available resources. The main aim of this research is: To examine the significance and performance of Malaysia Islamic REITs in a mixed-asset portfolios.

The objectives of this research are:

i. To compare the performance of Islamic REITs and Conventional REITs.
ii. To assess the significance of Islamic REITs in mixed-asset portfolio in Malaysia using optimal allocation and efficient frontier.
iii. To examine the causality relationship and significance between Islamic REITs returns and other asset classes.

1.7 Research Methodology

This section summarises the research methodology of this study and will be discussed extensively in Chapter 4. This study adopts the modern portfolio theory (MPT) established by Markowitz, (1952). In order to perform the theory, historical data is needed to be analysed in a risk-adjusted performance analysis, diversification benefits, efficient frontier and optimal allocation. The research strategy of this study will be fully conducted in a quantitative analysis.

According to Creswell, (2009) the quantitative research uses theory deductively, collects the data and tests it. In this case, the asset classes' historical data retrieved by Datastream (including I-REITs) will be analysed using a

statistical method. From a philosophical point of view, the quantitative research shows the characteristics of post-positivism[3].

Mostly, investors want mixed-asset portfolios that produce the highest maximum return and the lower risk level. MPT provides a way for investors to use the diversification to optimise the return of the mixed-asset portfolio via efficient frontier techniques. Then, the simple rule based on the inclusion asset in the mixed-asset portfolio should lower the risk, maximise the expected return and the investors are suggested to allocate the wealth based on the optimum portfolio allocation. The diversified wealth should encounter the risk level based on the calculation from efficient frontier (Hui and Yu, 2010).

This research will analyse the performance of Islamic REITs in a mixed-asset portfolio from December 2008 to December 2014. This study will empirically analyse the performance of I-REITs on a risk-adjusted basis. The performance measurement tools that has been used is the Sharpe ratio created by Sharpe (1966). Diversification benefits should be analysed using the correlation analysis to identify the inter-asset correlation. The lower the correlation between asset classes indicates that the diversification is higher and shows potential.

Advanced econometric models will be used to examine the causality relationship between the asset classes. I-REIT's returns might be possible for determining from other asset classes' historical returns. [4]Bivariate Granger causality (block exogeneity test) test is used to assess the dynamics of volatility of I-REIT's return and other asset classes. Vector auto-regression (VAR) is a tool to forecast the return and using the interrelated time series to analyse the dynamic impact of random disturbance in the system of variables. To perform the bivariate

[3] According to Calderwood, (2002) typically, post-positivist is the approach of social science researcher ways to collect the quantitative data. This is also emphasised by Creswell, (2009) where the empirical observation and measurement is one of the post-positivism areas of knowledge.
[4] For further information, see Razali (2015) and Seng Cheong et al. (2011) .

Granger causality test, the VAR system is needed to run to come up with appropriate deterministic components.

Generally, this study will investigate the significance and performance of Islamic REITs in a mixed-asset portfolio from December 2008 to December 2014. There are approximately nine variables in the mixed-asset portfolio. Basic statistical analyses used are risk-adjusted performance analysis, diversification benefits, efficient frontier and optimal allocation. Advanced econometrics analysis will be investigated by the bivariate Granger causality test in order to assess their dynamics of volatilities.

1.8 Significance of the Study

This study has contributed to the body of knowledge by extending the existing literature on Islamic REITs in Malaysia. In particular this study also provides an empirical analysis on the performance of Malaysia's conventional REITs and Malaysian listed property companies as a comparison. The Islamic and conventional REIT total return market-capitalisation weighted indices have been built to act as benchmarks for these two markets.

This study offers an important insight to the investment characteristics of Islamic REITs and their role in domestic portfolios. In addition, it also illustrates the benefits of optimal portfolio's allocation of Islamic REITs in domestic portfolios to assist with decision making for investors by diversifying techniques. With this, the empirical analysis, it will help to choose the best asset class in a portfolio that can be expected to capture the interest to both academics and practitioners; and in particular institutional investors.

The third contribution is that through use of a longer time period of analysis for Islamic REITs which has been expanded up to six years from 2008 to 2014. A longer time period is important to be assessed because REITs' investors are usually involved in long term investments. The characteristic of risk and return of REITs can be defined more accurately using a longer time period of study.

A further contribution is the property knowledge of the movement of REIT's returns with other asset classes. The exploration of dynamic of volatility of the I-REITs market in Malaysia has been discovered in terms of asset classes' relationships and influence among them. This study has offered new directions and understanding by expanding the analysis interactions of I-REITs.

For the theory contribution, this study is involved in real estate, finance and econometrics' fields of study. This research has gone some way towards improving the understanding of development of Malaysia's property investment as a multi-disciplinary area. This research also extends the work of Markowitz (1952) on portfolio theory to a new asset class, which is Islamic REITs.

1.9 Research Scope

The study is focused on the significance and performance of I-REITs in a mixed-asset portfolio. The analysis used in this study were only limited on the statistical and econometrics analysis to examined the performance of I-REITs in a mixed-asset portfolio and its significance in the mixed-asset portfolio. The asset classes for the analysis purpose in the mixed-asset portfolio were the domestic stocks in Malaysia such as I-REITs, C-REITs, shares, Islamic shares (I-shares), bonds, property, industrial, finance and agriculture. The analysis is focused in the Malaysia only.

1.10 Thesis Organisation

This thesis is divided into six chapters. The introduction, research background, research gaps, research issues, research questions, aims and objectives, research methodology, scope of research and significance of the study have been set out in the first chapter. Figure 1.2 shows the overall structure of the thesis. The remaining chapters of the thesis are summarised as follows:

Chapter 2 provides a comprehensive literature overview of the Malaysian Islamic REIT markets. It represents the Asian REIT market, the Malaysian property markets and the development of Islamic REITs in Malaysia. In particular, the structure and profile of the current and prospective Malaysian I-REIT regimes will be discussed and reported. The use of other asset classes in a mixed-asset portfolio for the comparison purposes is also explained.

Chapter 3 presents the Modern Portfolio Theory (MPT) as the backbone of this research and reviews the body of literature related to the role and performance of indirect property in an investment portfolio. The discussions are focus on the methods or techniques used in the previous study to access the significance and performance of asset investments and the results of the study.

Chapter 4 describes the data and research methodologies employed in this study. It represents the data sources and description of variables. These research methodologies will be proposed and elaborated. The performance measures and the econometric techniques (VAR and Granger causality) applied in this study will be explained in detail.

Chapter 5 reports the empirical findings on the investment performance of Malaysian Islamic REITs in a local context. The risk and return characteristics of each asset class will be evaluated. The role of Malaysian Islamic REITs in a

domestic mixed-asset portfolio for the domestic markets will be assessed. Thus, the comparison between Conventional REITs portfolios and Islamic REITs portfolios will also be discussed in this study. The relationship between asset returns also will be presented in this chapter.

Chapter 6 finalises the thesis with the conclusion. It summarises the main findings on all the asset classes' investment performances and the return's movement of the Malaysian Islamic REIT with other asset classes. It will further review the theoretical contributions and strategic implications of the key findings. This chapter ends with a discussion on the limitations of the thesis and recommendations for further research.

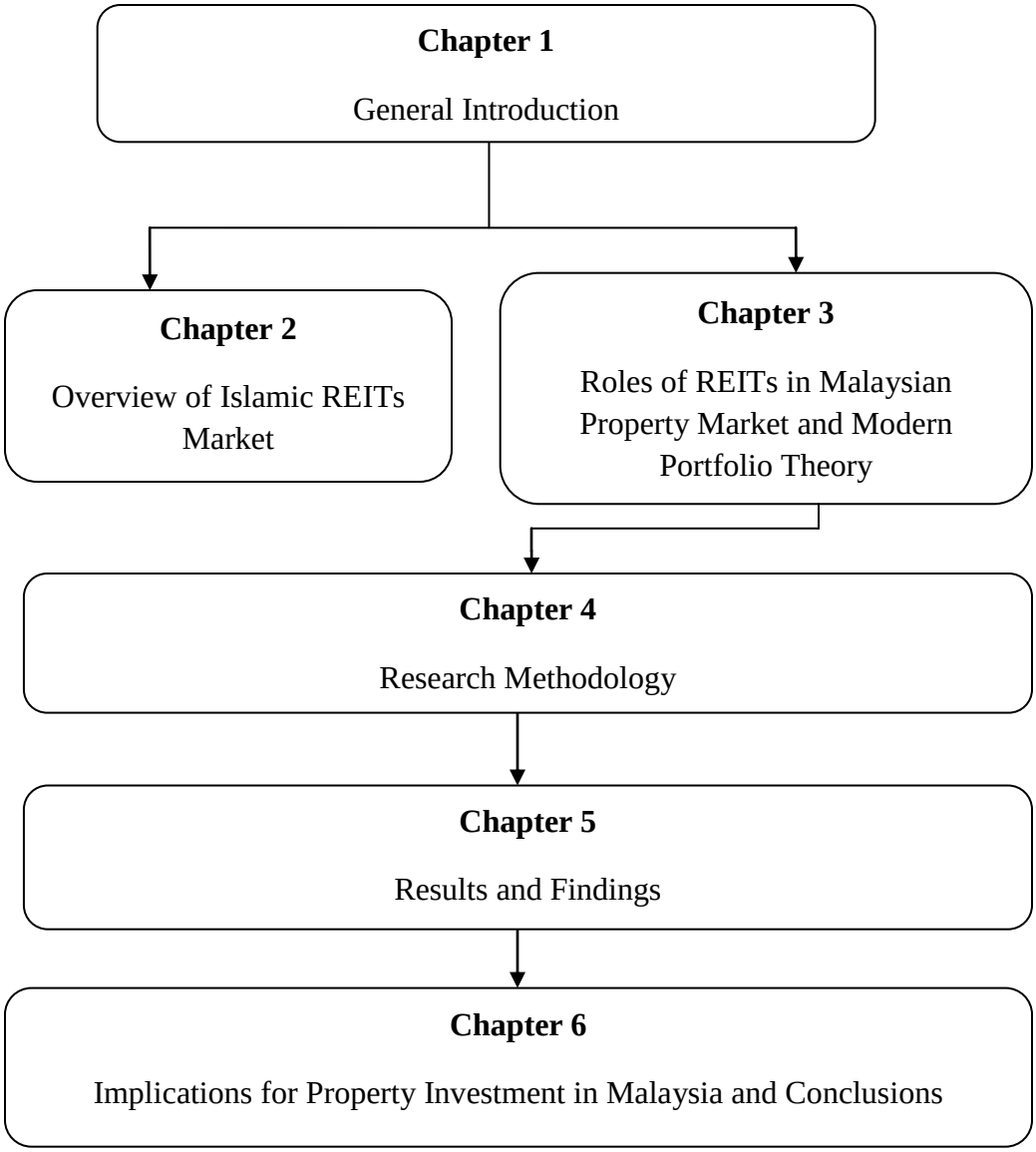

Figure 1.2: Overall Structure of the Thesis

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